Listing of Claims:

Claims 1-15 (Canceled).

16. (Previously Presented) A microscope comprising:

a light source which illuminates a specimen;

an objective located opposite to the specimen;

a field stop projection lens, located on an illumination axis between the light source and the objective, to narrow a field of view of the specimen;

a digital micromirror device which is conjugate with the specimen via the field stop projection lens and the objective, and which comprises a plurality of two-dimensionally arrayed micromirrors that are individually selectable to be turned on so as to reflect light along the illumination axis to the specimen;

a reflection mirror which reflects illumination light from the light source onto the digital micromirror device;

a shutter;

a dichroic mirror which is located on an observation axis of the objective so as to reflect the illumination light emitted from the light source onto the objective and to pass observation light from the objective;

an excitation filter which selectively passes light components of the illumination light that are suitable for excitation of a fluorescent material in the specimen;

an absorption filter which selectively absorbs light components of the observation light;

a camera located on the observation axis to pick up an observation image;

a monitor which displays the image picked up by the camera;

a drive controller which controls the digital micromirror device and the shutter; and

a computer which controls the drive controller, camera and monitor such that:

before picking up an image of the specimen, all of the micromirrors are turned on while the shutter is closed, and the shutter is opened to cause the illumination light to be guided to the specimen via the turned-on micromirrors, such that an image of a part of the specimen that is located within the field of view is picked up by the camera, and wherein the shutter is closed after an image pick-up operation of the camera ends;

the image picked up by the camera is displayed by the monitor, an irradiation area to be irradiated with the illumination light is specified, and respective ones of the micromirrors which correspond to the specified irradiation area are specified; and

before picking up an image of the sample again, only the specified ones of the micromirrors are turned on while the shutter is closed, and the shutter is opened to cause the illumination light to be guided to the specimen via the turned-on micromirrors, such that another image of the part of the specimen that is located within the field of view is picked up by the camera, and wherein the shutter is closed after the image pick-up operation of the camera ends;

wherein when the shutter is closed, the shutter prevents stray light, from gaps between adjacent ones of the micromirrors, from reaching the specimen.

17. (Previously Presented) The microscope according to claim 16, wherein the shutter is located between the light source and the reflection mirror.

18. (Previously Presented) The microscope according to claim 16, wherein the shutter is located between the digital micromirror device and the field stop projection lens.

19. (Currently Amended) A microscope comprising:

a light source which illuminates a specimen;

an objective located opposite to the specimen;

a field stop projection lens, located on an illumination axis between the light source and the objective, to narrow a field of view of the specimen;

a digital micromirror device which is conjugate with the specimen via the field stop projection lens and the objective, and which comprises a plurality of two-dimensionally arrayed micromirrors that are individually selectable to be turned on so as to reflect light along the illumination axis to the specimen;

a reflection mirror which reflects illumination light from the light source onto the digital micromirror device;

a shutter;

a dichroic mirror, which is located on an observation axis of the objective so as to reflect the illumination light emitted from the light source onto the objective and to pass observation light from the objective;

an excitation filter, which selectively passes light components of the illumination light that are suitable for excitation of a fluorescent material in the specimen;

an absorption filter which selectively absorbs light components of the observation light;

a camera located on the observation axis to pick up an observation image;

a drive controller which controls the digital micromirror device and the shutter; and

a computer which controls the drive controller such that:

before picking up an image of the specimen, desired ones of the micromirrors are turned on while the shutter is closed, and the shutter is opened to cause the illumination light to be guided to the specimen via the turned-on micromirrors, and wherein the shutter is closed after an image pick-up operation of the camera ends, so as to prevent stray light, from gaps between adjacent ones of the micromirrors, from reaching the ~~sample~~ specimen.

20. (Previously Presented) The microscope according to claim 19, wherein the shutter is located between the light source and the reflection mirror.

21. (Previously Presented) The microscope according to claim 19, wherein the shutter is located between the digital micromirror device and the field stop projection lens.